

REMARKS

Accompanying this preliminary amendment is a certified English translation of the German language specification submitted at filing. Specification amendment page and line number references are to the accompanying English text.

Amendments made to the specification are of form and grammatical nature and do not add any new matter. An Abstract of Disclosure has been added to the specification.

Claims 1-30 have been cancelled and are replaced with new claims 31-63 to eliminate claim multiple dependencies as well as to more particularly point out and distinctly claim the subjects matter applicants regard as their invention. The newly submitted claims are fully supported in the application disclosure as filed, and no new matter is contained in claims 31-63.

A check in the amount of \$214 is enclosed in payment for the addition of new claims (2 independent claims in excess of three, 3 dependent).


An early and favorable action is solicited in this application.

By Express Mail # EL 834972625US · July 27, 2001

Any additional fees or charges required at this time in connection with the application may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

Respectfully submitted,

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MARKED UP COPY OF CHANGES TO SPECIFICATION

Amended page 1, delete the paragraph beginning on line 24, and substitute:

[US 5 018 566] U.S. Patent No. 5,018,588 describes a tie rod drill for the insertion of ground tie rods, such as are used in the civil engineering industry to secure embankments or pillar walls. The tie rod drill disclosed has a tracklaying gear on which a drill upper part is mounted by means of a live ring. Arranged on this upper part is a mast, to which a slide is fastened, on which in turn drill mount is mounted via a pivot device and a hydraulic cylinder. This drill mount consists of a supporting frame, a drill drive and two grippers, in which a drilling pipe can be retained.

Amended page 2, paragraph beginning at line 15

It is an object of the present invention to propose a drilling machine for exploratory and productive wells, a drilling rig and a method whereby decisive cost savings can be achieved with regard to logistical and personnel costs. [The object of the invention is achieved, according to the invention, by claims 1, 16, 21, 25 and 26. Further advantageous embodiments of the invention are indicated in the dependent claims]

Page 7, paragraph beginning at line 26

The text that follows provides details of a specific embodiment of the invention[as illustrated in figure 4]

Page 8, paragraph beginning on line 11

A further embodiment envisages installing a small winch in the lower region of the base in order also to pull down the receiving frame of the top drive, especially if the installation of a drawworks as a linear drive is intended [as is also shown in figure1].

The cable of this small winch is fixed to the lower part of the receiving frame or guided downward over a return roller fixed on the receiving frame, and secured. By means of this winch, workover tasks, drilling operations and also snubbing operations (or pipe installation) can be performed more simply.

Page 9, paragraph beginning on line 1

Also [claimed] described is a drilling rig, which is characterized in that two or more drilling machines are arranged to be alternately movable or rotatable or pivotable over the well center. The advantage of such a design resides in the fact that one drilling machine performs the actual drilling operation and the other is supplied with a pipework for that operation. As a result of this the drilling time is reduced and cost-effectiveness optimized.

Page 10, paragraph beginning on line 5

The top drive is in the upper position and the multifunctional gripper at the same height as the pipes, for example, lie on the stands. The pipe is rolled over the base. Then, in the lying position, the pipe is gripped by the multifunctional gripper and thus locked. Subsequently,

by means of the top drive and the handling device, which is [arranged below the top drive,]
located between the top drive and a lower region of the base, the upper connection to the pipe is
produced. Subsequently, the base is raised into the vertical position by means of the lifting
apparatus and the lower connection between the pipe on the base and the pipe located in the well
is made. Optionally, when this position is reached, the base can be locked on a steel structure.

Page 10, paragraph beginning on line 23

The connection between the top drive shaft and pipe is produced, in particular,
when pipes are set down during drilling. During pipe handling [pipe] steps involved in
installation and removal operations, the pipe can also be merely suspended in the elevator
which is arranged below the top drive, since the thread of the pipe is particularly protected
from damage and the operations can be performed more quickly.

Page 11, paragraph beginning on line 21

A further advantageous embodiment of the method according to the invention is
illustrated by means of a rigid base [, as illustrated for example in figure 3]. The pipe is
removed from the pipe rack by means of the rail-borne pipe handling system and moved
toward the rig floor. The top drive is located in the upper position.

Page 13, paragraph beginning on line 28

Examples of [embodiment] embodiments of the rigid version with one drilling machine and a rail-borne pipe handling system and the rotatable version with two drilling machines and pipe handling system (e.g., a vertical pipe handler/horizontal pipe handler [possible] are explained [in figures 1 to 10] hereinafter.

Page 14, table of drawings beginning on line 1

In the [figures] drawings:

Fig. [figure] 1 shows the lateral view of the base; [,]

Fig. [figure] 2 shows the front view of a base; [,]

Fig. [figure] 3 shows on enlarged scale the plan view of the upper part of a rotatable base; [,]

Fig. [figure] 4 shows the lateral view of a drilling machine with a base (rigid) arrangement; [,]

Fig. [figure] 5 shows the front view of the drilling rig; [,]

Fig. [figure] 6 shows the plan view of a rigid drilling machine; [,]

Fig. [figure] 7 shows a rail-borne pipe handling device (for horizontal or vertical racks); [,]

Fig. [figure] 8 shows a frontal view of a drilling [rig] machine and a pipe handling device and a pipe receiving unit disposed alongside the drilling rig; [,]

Fig. [figure] 9 shows the plan view of a drilling rig with two drilling machines; [,]and

Fig. [figure] 10 shows a lateral view with two drilling machines with live rings.

Page 14, paragraph beginning on line 18

In [figures] Figs. 1, 2, 4, 5, 6, 8, 9 and 10, the receiving frame 4 with top drive 2 and handling device 5 or the pipe handling device 23 are shown in two different positions, one position in each case being shown in broken lines. In the broken-line illustration of the receiving frame and the top drive, the return roller 11 is not shown.

Page 14, paragraph beginning on line 25 and bridging to page 15, line 8

[Figure] Fig. 1 shows the lateral view of the base 1 with the top drive 2, the linear guide 3 attached to the base, the receiving frame 4 for the top drive, the handling device below the top drive 5 and the elevator for pipe acceptance. Below the top drive is optionally arranged a screwing and securing device, in order to screw a pipe fed in by means of the handling device fixedly to the shaft of the top drive, or, for example during the removal of the pipe, to break the connection again between top drive and pipe. Struts 42 Of the base 1 are indicated, these improving the statics of the base.

Page 15, beginning on line 40

[Figure] Fig. 2 shows the frontal view of the base 1 with the top drive2, the receiving frame 4, the handling device 5 and the elevator 6.

Page 16, paragraph beginning on line 12

[Figure] Fig. 3 shows the plan view of a rotatable base 1 with the linear guide 3, in which the receiving frame 4 is guided by means of guide rollers with the top drive 2 mounted thereon.

Page 16, paragraph beginning on line 20

[Figure] Fig. 4 shows the lateral view of the drilling machine with a base according to [figure] Fig. 1.

Page 17, paragraph beginning on line 18

[Figure] Fig. 5 shows the frontal view of the drilling rig with the base 1 corresponding to [figure] Fig. 2, the live ring 9 having been replaced by an intermediate piece 27.

Page 17, paragraph beginning on line 34

[Figure] Fig. 6 shows the plan view of the rigid drilling machine on the rig floor 21. In the plan view, the lateral arrangement of the iron roughneck 20 is identifiable. The pipes are removed from the vertically standing pipe boxes 26 by the rail-borne pipe handling system 23, which runs on the rails 24, and passed to the drilling machine. Any desired storage capacity can be achieved by this arrangement of the vertical pipe boxes 26.

Page 18, paragraph beginning on line 7

[Figure] Fig. 7 shows the rail-borne handling device 23. The possibility exists of storing [the pipe] a stock of pipes 25 in vertically standing [or horizontally] (or horizontally) lying [(not shown)] pipe boxes 26 and removing them therefrom.

Page 18, paragraph beginning on line 31

[Figure] Fig. 8 shows the frontal view of the drilling rig in section, with two bases 1 and the associated components, as shown in [figure] Fig. 2, one of the bases not being shown as a result of the section. This drilling rig is equipped, in this embodiment, with one live ring 9 in each case, below the base 1, in order to pivot the drilling machine alternately over the well center.

Page 19, paragraph beginning on line 4

Page 19, paragraph beginning on line 20

Page 19, paragraph beginning on line 24

This design of the drilling rig possesses two drawworks 17 and also two cables 13, [figure] Fig. 10 showing only the drawworks and cable 13 of the drilling machine 40: